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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------|------------------------|
| 10/748,520 | 12/30/2003 | Irene Spitsberg | 129968 | 7282 |
| 6111 7590 05/24/2007 GENERAL ELECTRIC COMPANY GE AVIATION ONE NEUMANN WAY MD H17 CINCINNATI, OH 45215 | | | EXAMINER ZIMMERMAN, JOHN J | |
| | | | ART UNIT 1775 | PAPER NUMBER |
| | | | MAIL DATE 05/24/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/748,520 | Applicant(s) SPITSBERG ET AL. | |
| | Examiner John J. Zimmerman | Art Unit 1775 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on January 22, 2007 (Appeal Brief).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-12,16-25 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 6-12, 16-25 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

OFFICE ACTION

New Rejections

1. This current Office Action is in response to "APPELLANTS' APPEAL BRIEF" received January 22, 2007. An updated search of the subject matter of the appealed claims was made in preparation to respond to applicant's brief. The updated search has resulted in new rejections. Since the new rejections were not necessitated by applicant's actions, the finality of the Detailed Action (mailed August 24, 2006) has been withdrawn and this current Office Action has not been made final. Claims 1-2, 6-12, 16-25 and 28 are pending in this application.

Specification

2. The disclosure is objected to because of the following informalities: Paragraph [0031] of the specification appears to be describing Figure 4 instead of Figure 3. Appropriate correction or clarification is requested.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference

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claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-2, 6-12, 16-25 and 28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent No. 7,166,373.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent encompass the subject matter of the pending claims of this application. Claim 1 of the patent provides coverage for a coating composition comprising at least about 93 mole % zirconia, up to 5 mole % yttria and from about 1 to 2 mole % lanthana. Claim 5 of the patent narrows the yttria range to from about 4 mole % to about 5 mole %. At 1 mole percent lanthana and 5 mole % yttria, the ratio of lanthana to stabilizer component is 0.20. Therefore the claims of U.S. Patent 7,166,373 clearly provide coverage for a composition comprising at least about 91 mole % zirconia, from about 5 to about 8 mole % stabilizer, from about 0.8 to about 2 mole % lanthana and wherein the ratio of lanthana to total stabilizer is from 0.15 to about 0.35 (e.g. pending claim 1). Regarding coating thickness limitations, U.S. Patent 7,166,373 provides coverage for thermal barrier components of the claimed composition in

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thicknesses which cover the claim limitations of this pending application (e.g. see claims 13-14 of the patent and claims 10 and 19-20 of this pending application).

5. Claims 1-2, 6-12, 16-25 and 28 are directed to an invention not patentably distinct from claims 1-22 of commonly assigned U.S. Patent 7,166,373. See the rejection, above. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. Patent 7,166,373 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter. A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 6-12, 16-18, 20-25 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Darolia (U.S. Patent 6,982,126).

8. Darolia discloses a zirconia thermal barrier coating containing 7 wt.% yttria and 3.9 wt.% lanthana (e.g. see example No. 4 in Table 1). This corresponds with a composition of 94.4 mole % zirconia, 4.0 mole % yttria and 1.5 mole % lanthana with a mole ratio of lanthana to total stabilizing component of 0.27. Darolia also discloses a zirconia thermal barrier coating containing 7 wt.% yttria and 5.3 wt.% lanthana and 1.7 mole % tantalum oxide (e.g. see example No. 5 in Table 1). This corresponds with a composition of 93.2 mole % zirconia, 4.1 mole % yttria, 2.2 mole % lanthana and 0.5 mole % tantalum oxide with a mole ratio of lanthana to total stabilizing component of 0.32. The coatings were applied in a thickness of about 150 micrometers (about 5.9 mils) and are columnar (e.g. see paragraph spanning columns 5 and 6). As shown in Figure 2, the thermal barrier coating is designed to overlie a bond coat layer. The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Response to Arguments

9. Applicant's arguments submitted in "APPELLANTS' APPEAL BRIEF" received January 22, 2007 have been carefully considered. The prior rejection of the claims over Bruce (U.S. Patent Application Publication 2003/0224200) has been withdrawn since a further review of Bruce shows Bruce's disclosure to be deficient in disclosing the invention of the pending claims. A review of Bruce shows zirconia coatings containing 3-4 wt. % yttria and 0.07-0.9 wt. % lanthana (e.g. paragraph [0019]) and zirconia coatings containing 3-4 wt. % yttria and 0.05-1 wt. % lanthana (e.g. paragraph [0023]). Bruce also discloses that up to 5 wt. % lanthana may be used with up to 4 wt% yttria (e.g. see paragraph [0017]). These coatings fail to satisfy the requirement of containing about 5-8 mole % stabilizer component since a theoretical composition of zirconia with 4 wt% yttria and 1 wt. % lanthana would correspond with 97.4 mole % zirconia, 2.2 mole % yttria and 0.4 mole % lanthana and a theoretical composition of zirconia with 4 wt% yttria and 5 wt. % lanthana would correspond with 95.8 mole % zirconia, 2.3 mole % yttria and 2.0 mole % lanthana. Although it is noted that Bruce discloses that from these results "it was concluded that comparable results should be obtained for YSZ TBC containing about one up to about ten weight percent yttria and about 0.1 to about 4 weight percent lanthana" (e.g. see paragraph 0023), this passage appears to be mere speculation and not actual embodiments performed by Bruce. As evidenced by applicant's Figure 3, the properties of the coatings vary for a ratio of 0.15-0.35 La/total stabilizer content in the range of 5-8 mole % stabilizer and it would not have been within Bruce's possession to recognize such properties based on the compositions up to 5 wt. % lanthana and up to 4 wt% yttria (e.g. see paragraph [0017]) that may have been tested by Bruce. Therefore, the subject matter of the pending claims

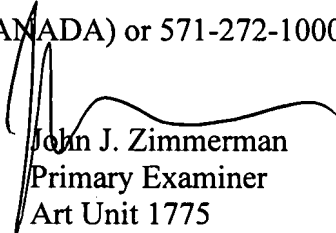
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is patentably distinct from the compositions that would have been obvious from the disclosure of Bruce since Bruce does not appear to be in possession of the compositions and their properties necessary to meet the limitations of the pending claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
May 11, 2007


JENNIFER MCNEIL
SUPERVISORY PATENT EXAMINER

5/21/7